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1284137

THE UNITED STATES OF AMERICA

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United States Patent and Trademark Office

February 10, 2005

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE.

APPLICATION NUMBER: 10/965,980

FILING DATE: *October 15, 2004*

RELATED PCT APPLICATION NUMBER: *PCT/US05/01271*



Certified by

Under Secretary of Commerce
for Intellectual Property
and Director of the United States
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Customer No.: 27614

Attorney Docket No.:

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Title:

Express Mail Label No.:

67895/40121

Charles J. Kowalski, et al.

Magnetic Construction Kit with Wheel-Like Components

EV 420641738 US

Sir:

Enclosed herewith please find the following documents in the above-identified application for Letters Patent of the United States:

<u>1</u>	Pages of Abstract
<u>10</u>	Pages of Specification
<u>20</u>	Number of Claims
<u>2</u>	Sheets of Drawings
<u>1</u>	Return-addressed Postcard
<u>1</u>	Express Mail Certification (Stapled to this Letter)
<u>1</u>	Declaration and Power of Attorney (unexecuted)

Basic Fee

\$ 790.00

Additional Fees:

Total number of claims (including multiple dependent claims) 20

Total number of claims in excess of 20, times \$18.00

\$ 0.00

Number of independent claims 2

Number of independent claims minus 3, times \$88.00

\$ 0.00

Fee for multiple dependent claims (\$300.00)

\$ 0.00

TOTAL FILING FEES:

\$ 790.00

Priority date for the United States Provisional Application Serial No. 60/536,866, filed January 16, 2004, is claimed under 35 U.S.C. § 119 (e).

Please note that this application is being filed without an applicant's executed Declaration. Please charge Deposit Account No. 501402 in the amount of \$790.00 to cover the fees associated with this filing. The Commissioner is also authorized to charge any additional fees which may be required, or credit any overpayment, to Deposit Account No. 501402. Duplicate copies of this letter are enclosed for such purposes. Pursuant to 37 C.F.R. 1.53, the United States Patent and Trademark Office is respectfully requested to accept this application and accord a serial number and filing date as of the date that this application is deposited with the U.S. Postal Service for Express Mail. Further, it is respectfully requested that the NOTICE OF MISSING PARTS-FILING DATE GRANTED pursuant to 37 C.F.R. 1.53(f) be sent to the undersigned attorney.

Respectfully submitted,

McCARTER & ENGLISH, LLP

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RWS/jmt
NWK2: 1235825.01

MAGNETIC CONSTRUCTION KIT WITH WHEEL-LIKE COMPONENTS**Cross-Reference to Related Priority Application**

5 This patent application claims priority of U.S. Provisional Application Serial No. 60/536,866, filed January 16, 2004, and entitled "Magnetic Construction Modules For Creating Three-Dimensional Assemblies", the disclosure of which is incorporated herein by reference in its entirety.

10 **Field of the Invention**

 The present disclosure is directed generally to puzzles and toys. More particularly, the present disclosure is directed to a construction toy for building movable two and three-dimensional structures utilizing a primary connecting element in combination with various secondary connecting elements.

15 **Background of the Invention**

 Individuals often find enjoyment in the challenge of building aesthetic structural designs and/or functional structural models. Frequently, the utility associated with constructing such structures is found in the creative and/or problem solving process required to achieve a desired structural objective. Currently, construction assemblies that exploit magnetic properties to interlink various structural components and thereby form different two and/or three dimensional structures are known and can provide an added dimension of sophistication to the construction process. For
20 example, the magnetic construction toy disclosed by Balanchi in U.S. Patent No. 6,626,727, the

modular assemblies disclosed by Vicentielli in U.S. Patent No. 6,566,992, and the magnetic puzzle/toy disclosed by Smith in U.S. Patent No. 5, 411,262. A significant shortcoming associated with conventional magnetic construction assemblies, such as those disclosed in the aforementioned patents, involves inherently restrictive and at times penalizing design alternatives provided thereby.

5 It is often the case that these traditional magnetic construction assemblies have only a limited number of component parts, which parts typically have constrained geometries to ensure effective and suitably stable or secure connections. Thus, despite efforts to date, a need remains for a magnetic construction kit that provides greater construction flexibility and/or design choice. Furthermore, it would be advantageous to provide a magnetic construction kit that is suitable for
10 movement thereby providing an additional degree of design/construction sophistication.

These and other needs/objectives are addressed by the present invention. Additional advantageous features and functionalities of the present invention will be apparent from the disclosure which follows, particularly when reviewed in conjunction with the accompanying drawings.

15

Summary of the Invention

According to an illustrative embodiment of the present invention, a movable magnetic construction kit is provided that permits improved structural profiles and increased construction flexibility and/or design choice. The present invention includes at least one primary or first
20 connecting element having at least one aperture therein and a number of magnets operatively associated with a periphery or edge thereof, at least one second connecting element having an elongated body operatively associated with at least one magnet, and a third connecting element suitable to operatively connect with the first and/or second connecting elements. The first

connecting element, in a preferred embodiment of the present invention is a hub-like structure suitable for rotating about a predefined axis of rotation.

Brief Description of the Drawings

5 For a better understanding of the present invention, reference is made to the following detailed description of various exemplary embodiments considered in conjunction with the accompanying drawings, in which:

FIG. 1 is a perspective view of a primary connecting element operatively associated with a secondary connecting element in accordance with an illustrative embodiment
10 of the present invention;

FIG. 2 is a first plan view of the primary connecting element of FIG. 1 in accordance with an exemplary embodiment of the present invention;

FIG. 3 is a second plan view of the primary connecting element of FIG. 2;

FIG. 4 is a schematic plan view of a movable magnetic construction kit
15 connecting element in accordance with an exemplary embodiment of the present invention; and

FIG. 5 is a perspective view of a movable magnetic construction kit in accordance with another exemplary embodiment of the present invention.

Disclosure of the Invention

Referring to the drawings and, in particular, FIG. 1, a primary connecting element in accordance with an illustrative embodiment of the present invention is shown and generally represented by reference numeral 10. The primary connecting element 10, as shown, has an overall
5 hub-like appearance with a disk-shaped, substantially planar body 12 having two faces, 11, 13, a number of primary magnets 14 operatively associated with a periphery or edge 16 thereof and at least one aperture 18 therein. In other embodiments of the present invention, the body 12 may have different shapes (e.g., polygonal, rectangular, etc.). As shown, the primary connecting element 10 is preferably operatively connectable with one or more secondary connecting elements 20. The
10 secondary connecting elements 20 each have at least one secondary magnet 22 suitable for magnetically interacting with one or more of the primary magnets 14 associated with the primary connecting element 10. The primary magnets 14 of the primary connecting element 10 are preferably equally distributed with respect to each other. The polarities (i.e., north (N) or south (S)) of the primary magnets 14 are preferably staggered or oriented so that adjacent primary magnets 14
15 have different polarities, thereby providing optimal points of magnetic connection. However, in other embodiments of the present invention, the primary magnets 14 and/or the polarities thereof need not be so arranged and may be distributed and/or oriented in a variety of different ways.

Referring to FIG. 2, the body 12 of the primary connecting element 10, in a preferred embodiment of the present invention, is a composite structure of a first half 24 and a
20 second half 26 operatively connected via any known method for accomplishing such a task (e.g., adhesive, sonic welding, and/or other mechanical process). In this embodiment of the present invention, the first half 24 and the second half 26 are at least somewhat identical, and preferably substantially identical. The two halves 24, 26, together, may define a central compartment or cavity

27 suitable for accommodating an object such as a label or decoration (not shown). The first and second halves 24, 26 preferably cooperate to fixedly hold or retain the respective primary magnets 14 and prevent any unwanted and/or inadvertent disengagement thereof. For example, in one embodiment of the present invention, the first and second halves 24, 26 cooperate to form a number
5 of magnet retaining pockets 28 about the edge 16 of the body 12. In other embodiments of the present invention wherein the body 12 is a solitary structure, the magnet retaining pockets 28 may, for example, be integrally formed in such solitary structure via a drilling or molding process.

The magnet retaining pockets 28 can have any of a variety of shapes, sizes and/or configurations. For instance, the magnet retaining pockets 28 can be cylindrical, square,
10 rectangular, ovular, and polygonal or any other appropriate geometric shape. Preferably however, the magnet retaining pockets 28 are such that the corresponding primary magnet 14 accommodated thereby can be fixedly retained therein via any appropriate process or technique for accomplishing such an operation. For example, the magnet retaining pockets 28 and primary magnets 14 may be appropriately sized to cooperatively create a frictional bond of sufficient
15 strength to prevent the inadvertent removal of the primary magnets 14. A suitable adhesive may also be utilized as appropriate to ensure a secure connection between the magnet retaining pockets 28 and the primary magnets 14. Still further, the respective magnet retaining pockets 28 can each have a retaining rim (not shown) for allowing effective receipt of the primary magnets 14 and preventing or at least substantially inhibiting the inadvertent removal thereof.

20 Referring to FIG. 3, in other embodiments of the present invention, different connecting arrangements may be utilized as appropriate to accomplish any of a variety of desired effects. For example, the magnet retaining pockets 28 can be configured to facilitate one or more primary magnets 14 being elevated a predefined extent ("E") with respect to an outer surface 30 of

the edge 16. The respective primary magnets 14 can be elevated so that at least a portion of a top surface 32 thereof can make effective contact with, for example, the secondary magnet 22 operatively associated with the secondary connecting element 20. In addition, the respective primary magnets 14 can be accommodated by the magnet retaining pockets 28 so that the top surface 32 of such primary magnets 14 is substantially flush with respect to the outer surface 30 of the edge 16. Still further, the magnet retaining pockets 28 can facilitate one or more primary magnets 14 being recessed a predefined distance ("R") with respect to the outer surface 30 of the edge 16.

Still referring to FIG. 3, in an alternative embodiment of the present invention, the primary connecting element 10 can have one or more mechanical connectors, such as, for example, a protrusion 21, a recess 23, or a slot 25. Preferably, each mechanical connector is operatively connectable with a corresponding complementary connecting element. For example, the protrusion 21 may be well suited to cooperate with a secondary connecting element 20 having a complementary recess (not shown). Likewise, the recess 23 may be well suited for operatively connecting with a secondary connecting element 20 having a complementary protrusion (not shown). Further, the slot 25 having a predefined width W and depth D may be operatively associated with a secondary connecting element 20 having a complementary portion with the same or slightly less corresponding dimensions so as to be slidably received by the slot 25 as desired.

As may be recognized by those of ordinary skill in the pertinent art based on the teachings herein, the identified mechanical connectors are only exemplary, however, and numerous other connectors that are currently or later become known for providing a stable connection between any of a variety of secondary connecting elements 20 and the primary

connecting element 10 equally may be used. For instance, each mechanical connector can be provided with a unique surface structure or texture (not shown) to improve further the mechanical connection between the respective connecting elements.

Referring to FIG. 4, in another embodiment of the present invention, the primary
5 connecting element 10 can operatively cooperate with one or more of the secondary connecting elements 20, one or more third connecting elements 36, and/or one or more fourth connecting elements 38 to form any of a variety of different construction profiles. For example, as shown, the primary connecting element 10 may be operatively associated with a number of circumferentially spaced, radially extending elongated secondary connecting elements 20. The elongated secondary
10 connecting elements 20, which preferably have secondary magnets 22 recessed a predefined extent E in each end thereof as demonstrated in FIG. 3, in turn, may each be operatively associated with a third connecting element. The third connecting element 36 may preferably operate as a flexible joint connecting two or more secondary connecting elements 20 distanced from the primary connecting element 10 so that the two or more secondary connecting elements 20 can be adjustably oriented in a
15 variety of different directions relative to each other. For example, as shown, the third connecting element 36 can be a magnetically retainable, ferromagnetic or magnetizable ball or sphere of appropriate size to connect three secondary connecting elements 20 so that one element is radially oriented with respect to the primary connecting element 10 and the other two elements are at least substantially aligned with each other and, as shown, at least somewhat perpendicular with respect to
20 the one element. Other arrangements would be readily apparent to one having ordinary skill in the pertinent art and equally may be used.

With reference to applicants' co-pending U.S. Application filed concurrently herewith and entitled "Magnetic Construction Module With Interchangeable Magnet Holders", the

disclosure of which is incorporated herein by reference in its entirety, it is noted that in an aspect of the present invention the spherical shape of the third connecting element 36 and the recessed secondary magnets 22 may allow for both a magnetic and a mechanical connection between each secondary connecting element 20 and the third connecting element 36. That is, a magnet may preferably be recessed with respect to the outer surface of a secondary connecting element a predefined depth (e.g., determined by the geometry of the third connecting element) so that a beveled edge is formed enabling the third connecting element to be both magnetically and mechanically connected to the secondary connecting element. This magnetic/mechanical connection arrangement may also be utilized with respect to the primary magnets 14 and pockets 28 of the primary connecting element 10. Accordingly, by utilizing both magnetic and mechanical connecting properties, this magnetic/mechanical connection arrangement, and other like configurations, may advantageously provide for greater connection stability or performance.

It is noted that it would be readily apparent to one of ordinary skill in the pertinent art based on the teachings herein that the third connecting element 36 can have any of a variety of other geometric shapes, sizes, or configurations suitable to effectively cooperate with at least the secondary connecting elements 20. For instance, the third connecting element 36, which, as previously noted, can preferably be made from a magnetizable material, can have a non-magnetic cover (not shown) providing restrictive access to the magnetizable third connecting element 36. The cover can be suitable to facilitate any of a variety of different mechanical and/or magnetic connections.

Furthermore, the secondary connecting elements 20 can each be operatively associated with one or more fourth connecting elements 38, which preferably operate as a rigid joint connecting two or more secondary connecting elements 20 at a distance from the primary connecting element 10 and so that the two or more secondary connecting elements 20 are rigidly oriented in

predefined directions with respect to each other. For example, as shown, the fourth connecting element 38 can be a curved member forming an elbow and connecting two secondary connecting elements 20 so that they are oriented at a predefined angle relative to each other. The fourth connecting elements 38 may be magnetically connected to the primary connecting element 10, the secondary connecting elements 20, the third connecting elements 36, and/or additional fourth connecting elements 38.

Referring to FIG. 5, in order to create dynamic movable magnetic construction profiles, one or more primary connecting elements 10 can be supported by an axle element 40. As shown, the axle element 40 preferably facilitates two or more primary connecting elements 10 to be operatively connected via the secondary connecting elements 20, the third connecting elements 36, and/or the fourth connecting elements to form any of a variety of construction profiles. The size and extent of such construction profiles is limited only by the relative magnetic strength associated with the magnets utilized with respect to the weight of the various connecting elements employed.

As shown, the axle element 40 preferably traverses the aperture 18 of each primary connecting element 10 supported thereby. The axle element 40 can have any of a variety shapes, sizes and/or configurations. Further, the axle element 40 may be permanently or detachably connected to a support surface 42. Still further, the axle element 40 can be operatively associated with an electro-mechanical device (not shown) for directly or indirectly providing an initial and/or continual work of movement force to any primary connecting element 10 supported the axle element 40. Alternatively, the axle element 40 can facilitate manually rotating any primary connecting element 10 supported thereby. In an embodiment of the present invention, once motion has been initiated, via manual or electrical means, such motion may be extended without continual manual and/or electrical aid for a specified time period by utilizing certain magnetic arrangements. For

example, a first primary connecting element 10 and/or the secondary connecting elements 20 associated therewith may be positioned sufficiently close to a second primary connecting element 10 and/or the secondary connecting elements 20 associated therewith so that, in operation, once the first primary connecting element 10 is put into rotation.

5 Having identified and discussed various components and features of the present invention, it will be understood by one skilled in the art that such components and/or features may be operatively connected to form any of a variety of different construction profiles, such as those disclosed in applicants' copending U.S. Patent Application filed concurrently herewith and entitled "Magnetic Construction Modules For Creating Three-Dimensional Assemblies," the disclosure of
10 which is incorporated herein by reference in its entirety. Although illustrative and exemplary embodiments of the present invention have been described with reference to the schematic illustrations herein, the present invention is not limited thereto. Rather, the various structural components and/or assemblies disclosed herein are susceptible to modification and/or variation without departing from the spirit or scope of the present invention.

WHAT IS CLAIMED IS:

1. A movable magnetic construction kit comprising:

at least one first connecting element having at least one aperture therein and a number of first magnets equally distributed about an edge thereof;

5 one or more second connecting elements having an elongated body and at least one second magnet operatively associated therewith; and

at least one additional connecting element for connecting two or more of said second connecting elements,

wherein said first connecting element is operatively associated with at least one support
10 element so as to be rotatable thereabout.

2. The construction kit of claim 1, wherein said first connecting element has a body defining an annular disc.

15 3. The construction kit of claim 1, wherein said number of magnets of said first connecting element are arranged so that adjacent magnets have different polarity relative to each other.

4. The construction kit of claim 1, wherein said number of magnets are recessed with respect to said edge of said first connecting element.

20 5. The construction kit of claim 1, wherein said number of magnets project outwardly with respect to said edge of said first connecting element.

6. The construction kit of claim 5, wherein said second connecting elements include at least one magnet retaining element having a pocket for securely retaining said at least one second magnet in a recessed manner.

5 7. The construction kit of claim 6, wherein said magnet retaining elements are separable with respect to said elongated body.

8. The construction kit of claim 1, wherein said second magnet of said one or more second connecting elements is magnetically connected to one of said first magnets of said first connecting
10 element.

9. The construction kit of claim 8, wherein said additional connecting elements are spherical and magnetizable.

15 10. The construction kit of claim 9, wherein said additional connecting elements flexibly connect two or more second connecting elements so that such second connecting elements can be adjustably oriented in a variety of different directions with respect to each other.

11. The construction kit of claim 10, wherein said first connecting element cooperates with said
20 second connecting elements and said additional connecting elements to form a first structural profile.

12. The construction kit of claim 11, wherein said first structural profile cooperates with said support element via said aperture of said first connecting element so as to be movable thereabout.

13. The construction kit of claim 12, wherein said first structural profile cooperates with a second structural profile via at least one of said second connecting elements, said additional connecting elements, and said support element.

5 14. The construction kit of claim 13, wherein said first structural profile and said second structural profile are simultaneously movable via said support member.

15. The construction kit of claim 13, wherein said first structural profile and said second structural profile are separably movable via said support member.

10

16. A connecting element for use in a movable magnetic construction kit, said connecting element comprising:

a substantially flat body having at least one aperture therethrough and a number of magnets operatively associated with an edge thereof, said magnets being equally distributed with respect to
15 each other and oriented so that adjacent magnets have different exposed polarities,

wherein said flat body is operatively associated with at least one support element so as to be rotatable thereabout.

17. The connecting element of claim 16, further comprising one or more mechanical connectors
20 located about said edge of said flat body.

18. The connecting element of claim 16, wherein said number of magnets are recessed with respect to said edge of said flat body.

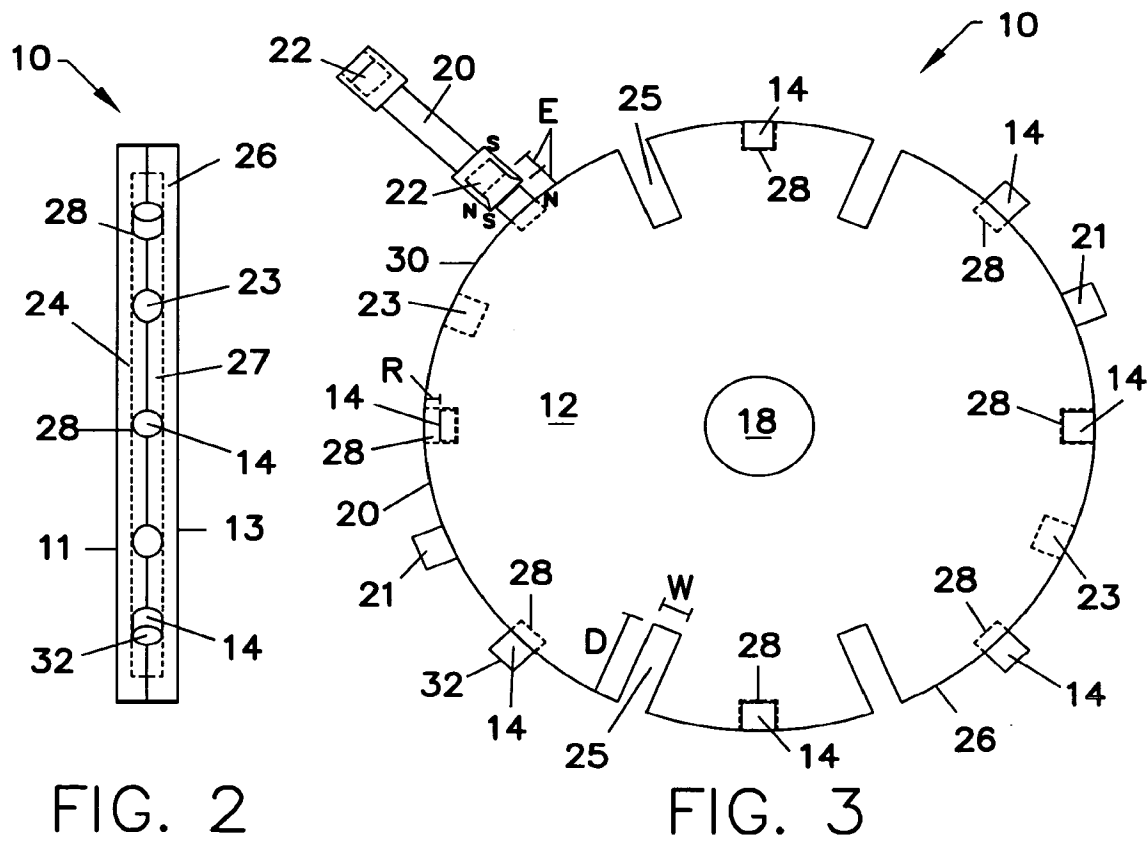
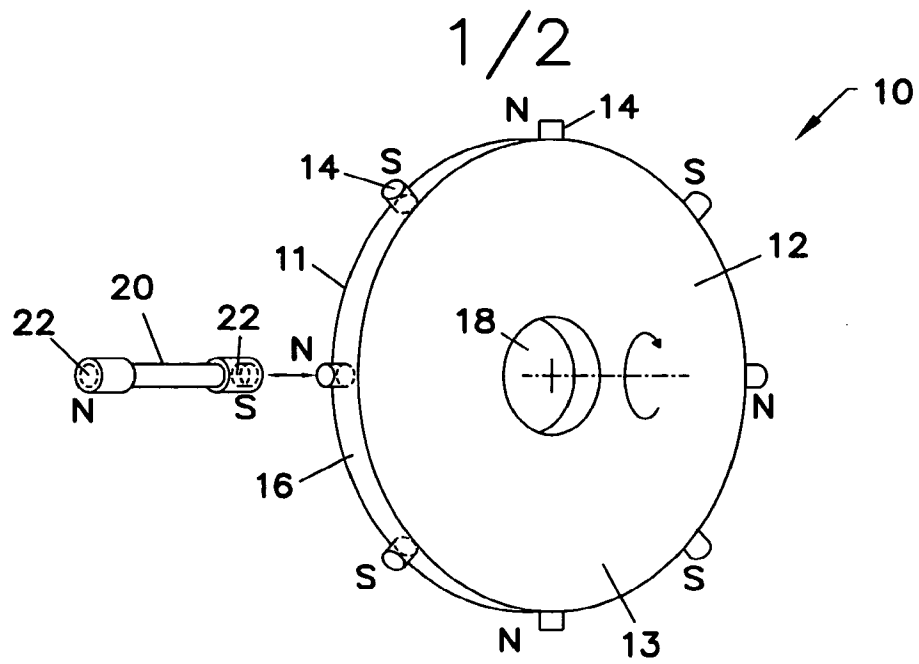
19. The connecting element of claim 16, wherein said number of magnets project outwardly with respect to said edge of said flat body.

20. The connecting element of claim 16, wherein said flat body defines an annular disc.

Abstract of the Disclosure

A movable magnetic construction kit that is suitable for creating a variety of different construction profiles and including at least one primary connecting element that can be operatively associated with one or more secondary connecting elements via magnetic and/or mechanical connections. The primary connecting element has at least one aperture therein and a plurality of magnets operatively associated with an edge thereof. The primary connecting element in combination with the secondary connecting elements provides for a movable construction kit for enhanced construction and design capabilities.

10 NWK2: 1200341.01



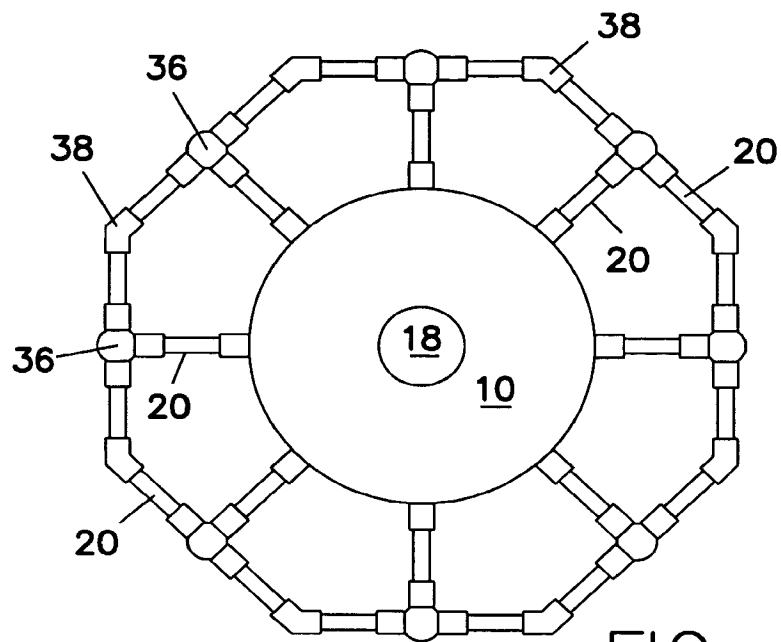


FIG. 4

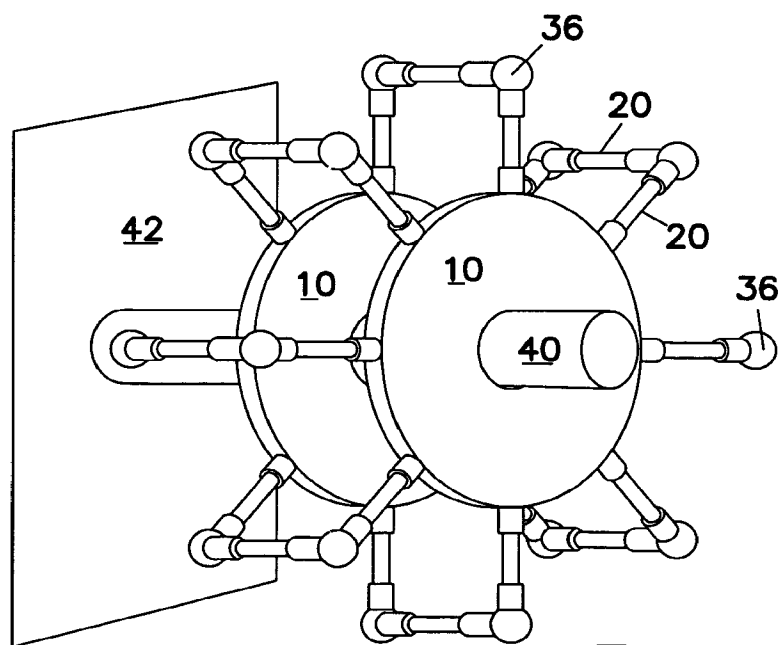


FIG. 5

DECLARATION AND POWER OF ATTORNEY
(Patent, Design or C-I-P Application)

As a below-named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are stated below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: MAGNETIC CONSTRUCTION KIT WITH WHEEL-LIKE COMPONENTS
the specification of which

X is attached hereto

was filed on _____ as Application Serial No. _____ and was amended on _____ (if applicable)

I hereby state that I have reviewed and understand the contents of the above-entitled specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. §1.56.

I hereby claim foreign priority benefits under 35 U.S.C. §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

PRIOR FOREIGN APPLICATION(S)

COUNTRY	APPLICATION NO.	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 35 U.S.C. 119
			YES ___ NO ___
			YES ___ NO ___

LISTING OF FOREIGN APPLICATIONS CONTINUED ON PAGE 2 HEREOF: YES ___ NO ___

I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application(s) listed below.

60/536,866

(Application Serial No.)

January 16, 2004

(Filing Date)

I hereby claim the benefit under 35 U.S.C. §120 of any United States application(s), or §365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application or PCT International application in the manner provided by the first page of 35 U.S.C. §112, I acknowledge the duty to disclose material information as defined in 37 C.F.R. §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)

(Filing Date)

(Status: patented, pending, abandoned)

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

RALPH W. SELITTO, JR., Reg. No. 26,996; PAUL F. SWIFT, Reg. No. 34,938; JOHN K. KIM, Reg. No. 37,002; SANJIV M. CHOKSHI, Reg. No. 44,080; JOSEPH AGOSTINO, Reg. No. 51,191; WILLIAM SMITH, Reg. No. 46,459; BASAM E. NABULSI, Reg. No. 31,645; MARK D. GIARRATANA, Reg. No. 32,615; ERIC E. GRONDAHL, Reg. No. 46,741; MARK STEINBERG, Reg. No. 40,829; GAVIN R. CUNNINGHAM, Reg. No. 46,122; BRYAN ZERHUSEN, Reg. No. 54,566; RAYMOND G. CAPPO, Reg. No. 53,836; DAVID BARNES, Reg. No. 47,407; ERIC E. BLEICH, Reg. No. 47,430; GRAHAM C. ALIG, Reg. No. 55,768; ROBERT A. MIGLIORINI, Reg. No. 50,262; and SETH M. WILSON, Reg. 45,228.			
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LISTING OF INVENTORS CONTINUED ON PAGE 2 HEREOF: YES X NO ___

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signature of Inventor #1	Signature of Inventor #2
Date:	Date:

SEE PAGE 2 ATTACHED, SIGNED AND MADE A PART HEREOF: YES X NO ___

DECLARATION AND POWER OF ATTORNEY

Page 2

Full Name of Inventor #3	Last Name: ROSEN	First Name: LAWRENCE	Middle Name: I.
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Post Office Address	Post Office Address: 10 VALLEY VIEW DRIVE	City: MENDHAM	State or Country and Zip Code: NJ 07945
Full Name of Inventor #4	Last Name:	First Name:	Middle Name:
Residence & Citizenship	City:	State or Foreign Country:	Country of Citizenship:
Post Office Address	Post Office Address:	City:	State or Country and Zip Code:
Full Name of Inventor #5	Last Name:	First Name:	Middle Name:
Residence & Citizenship	City:	State or Foreign Country:	Country of Citizenship:
Post Office Address	Post Office Address:	City:	State or Country and Zip Code:

LISTING OF INVENTORS CONTINUED ON PAGE 3 HEREOF: YES ___ NO ☒ X

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signature of Inventor#3	Signature of Inventor #4	Signature of Inventor#5
Date:	Date:	Date:

SEE PAGE 3 ATTACHED, SIGNED AND MADE A PART HEREOF: YES ___ NO ☒ X

NWK2: 1208882.01